



US005487083A

United States Patent [19]

Nakajima et al.

[11] Patent Number: **5,487,083**[45] Date of Patent: **Jan. 23, 1996**

[54] **HAND-OFF METHOD AND MOBILE STATION FOR SPREAD SPECTRUM MOBILE COMMUNICATION**

[75] Inventors: **Nobuo Nakajima; Kenji Imamura**,
both of Yokohama, Japan

[73] Assignee: **NTT Mobile Communications Network Inc.**, Tokyo, Japan

[21] Appl. No.: **235,789**

[22] Filed: **Apr. 29, 1994**

[30] **Foreign Application Priority Data**

May 12, 1993 [JP] Japan 5-110544
May 12, 1993 [JP] Japan 5-110545

[51] Int. Cl.⁶ **H04K 1/10**

[52] U.S. Cl. **375/200; 455/33.1**

[58] Field of Search 375/1; 455/33,
455/34

[56] **References Cited**

U.S. PATENT DOCUMENTS

5,101,501 3/1992 Gilhousen et al. 375/1
5,179,571 1/1993 Schilling 375/1
5,265,119 11/1993 Gilhousen et al. 375/1

5,267,261 11/1993 Blakeney et al. 375/1

FOREIGN PATENT DOCUMENTS

9107020 5/1991 WIPO .
9215164 9/1992 WIPO .

Primary Examiner—David C. Cain

Attorney, Agent, or Firm—Pollock, Vande Sande, & Priddy

[57] **ABSTRACT**

Radio zones 2a through 2d are each assigned radio frequency channels of the number corresponding to the zone traffic, one frequency f1 of the radio frequency channel is assigned in common to all radio zones, and radio channels of the same frequency are assigned spectrum spreading codes different for each zone. A mobile station is provided with two correlators 14 and 15. If the received signal level lowers when the mobile station stays in the radio zone 2a and is in conversation over the channel of a frequency f2, the mobile station once switches the communication to a channel of the common frequency f1 and continues the communication using one of the correlators, while at the same time the mobile station scans spectrum spreading codes for control channels of the respective radio zones by the other correlator for measuring the received signal levels of the control channels and determines a destination radio zone which provides the maximum received signal level.

8 Claims, 7 Drawing Sheets

